DOCUMENT RESUME

ED 392 436 IR 017 727

AUTHOR Kieffer, Linda M.
TITLE Establishing a Computer Literacy Requirement for All Students.
PUB DATE 95
NOTE 6p.; In: "Emerging Technologies, Lifelong Learning, NECC '95"; see IR 017 705.
PUB TYPE Reports - Descriptive (141) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS College Curriculum; *College Freshmen; Computer Graphics; *Computer Literacy; Course Content; Course Evaluation; *Courses; *Degree Requirements; Higher Education; *Instructional Design; *Instructional Development; Internet; Online Searching; Spreadsheets; Telecommunications; Word Processing
IDENTIFIERS *Computer Use

ABSTRACT

Several factors have indicated the necessity of formally requiring computer literacy at the university level. This paper discusses the reasoning for, the development of, and content of two computer literacy courses required of all freshmen. The first course contains computer awareness and knowledge that students should have upon entering the university; the content includes practical knowledge and use of computer components, operating systems, word processing, and computer graphics. The course credit does not count towards graduation. The second course includes practical knowledge and use of spreadsheet, database, library database searching, telecommunications, and the Internet; this course counts for university credit. Three parts make up the exam for the first literacy course: (1) a self-grading HyperCard stack that asks questions covering the course content; (2) a document on the Macintosh and a list of operations to perform on that document; and (3) a document on the DOS machine and a similar list of operations to perform. The second course exam is also composed of three parts: (1) a spreadsheet with a list of operations to define and enter; (2) a database with a list of queries to perform; and (3) a list of six questions from which the student must choose four to answer using the word processor. The courses consist of six 1-hour lectures and nine 1-hour lab classes. To assess the courses, a perception survey is given to students in the first and last lab classes. An appendix lists the concepts for both computer literacy courses. (AEF)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)
☐ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

ED 392 436

Establishing a Computer Literacy Requirement for All Students

by Linda M. Kieffer

Paper presented at the NECC '95, the Annual National Educational Computing Conference (16th, Baltimore, MD, June 17-19, 1995.

IR017727

BEST COPY AVAILABLE

PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Donella Ingham
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

paper

Establishing a Computer Literacy Requirement for All Students

Linda M Kieffer
Assistant Professor
Eastern Washington University
MS # 86
Cheney WA99004-2431
(509) 359-7093
lkieffer@ewu.edu

Key words: computer literacy, course design, computer-literacy requirement

Abstract

While many may feel that instruction in computer literacy is no longer necessary at the university level, several factors have convinced us of the necessity of formally requiring computer literacy. at the university. Computer literacy is a dynamic term which needs to be redefined as the expectations for literacy change. This paper discusses the reasoning for, development of and content of two computer literacy courses required of all freshmen. While these course only began in Fall 1994, early statistics lead us to believe the courses are fulfilling the needs of both the students and the faculty.

Introduction

As early as 1985 Spresser(1985) stated that computer literacy courses were no longer needed. Many assume that students come to universities with adequate computer skills, and since the computer is a tool for all disciplines the only additional instruction needed could be included in courses across the curriculum. This attitude seems to have spread and computer literacy courses are often viewed as unnecessary and obsolete.

In contract to the above, we have faced events which led us to believe that computer literacy is not only necessary but should be required for all students. First, students from many disciplines were coming back after graduation asking for a course in computer literacy. The skills they had acquired while completing their degree work were not sufficient to meet the minimum requirements of the workplace. Secondly, new courses in several disciplines were being designed to include a computer literacy component. In addition to the usual concern over unnecessary duplication, investigations revealed inconsistent and erroneous information was being presented.

These observations lead to the following questions concerning our obligations to all students:

- If students are graduating from a university without computer skills, are they prepared for the world?
- Is the duplication of information in several courses efficient?
- Who is best qualified to teach computer literacy?
- Would students perform better at the university if they acquired computer skills in their freshman year?

The Design

In the spring of 1991 a task force was established to study the problem of computer literacy. There was immediate consensus on the need to eliminate duplication of information, the need for computer literacy instruction and that the computer science department should teach such a course. This agrees with Dyck, et. al.(1987) who state "there is a clear consensus that all students should be expected to use the computer effectively as a productivity tool during their university career and that they should expect to interact more and more with computers once they finish university and enter the workplace."

Since the early 80s, we have tried to define computer literacy and what is a computer literate student. Attempts at definitions include "what a person needs to know to function in the world" or "being able to use the computer as an intellectual tool in a chosen field". The term "computer literacy" is generally accepted to be a dynamic term rather than a static term. Since the definition is dynamic we should review the definition and repeatedly redefine it as the standards of literacy change. Van Dyke (1987) feels we need to keep the purposes of computer literacy central in our definition as we define the term and the content of a computer literacy course, that is to be required of all students. Some of the questions we had to address in attempting to redefine computer literacy were:

- What do students need to know to function as a university student and after they graduate?
- Does a business student need the same skills as the humanities student
- or the science student?
- Is there a corpus of information that all students should possess
- What platform should be used? (Macintosh or DOS)
- Should all students take the same course on the same platform?
- How many credits should this course be?
- Is computer literacy really a university topic?
- Is more than computer awareness required?
- When should a student take a computer literacy course?

The final design consists of two courses of one credit each to be taken in the freshman year. These are not computer

BEST COPY AVAILABLE

science courses, but rather computer literacy courses for all students. The first course contains computer awareness and knowledge we hope all students have upon entering the university. The course credit does not count towards graduation. The content includes practical knowledge and use of computer components, operating systems, word processing and computer graphics. The second course includes practical knowledge and use of spreadsheet, database, library database searching, telecommunications and Internet. These are the skills we determined would help a student succeed at the university and after graduation. This course does count for university credit. The following guidelines were agreed upon:

- In both courses the students would have to demonstrate ability on both the Macintosh and DOS platforms.
- The final exam would be entirely on the computer.
- The software would be the integrated package supported in all university computer labs, Microsoft Works.
- Students could challenge either or both courses by taking the exam for a small fee.
- 80% and above is a passing score on each exam.
- Each exam has a time limit of 90 minutes.
- A student must pass literacy I before attempting literacy II.
- A student may attempt an exam once a quarter. If they fail an exam they must wait until the next quarter to try again.

A more detailed explanation of the concepts covered in each course is included in the appendix.

The Exams

The exam for literacy I consists of three parts:

1. a self grading *HyperCard* stack that asks questions covering computer components, hardware, software, paint and drawing programs,
2. a document on the Macintosh and a list of operations to perform on that document. These include copying, renaming, spell checking, using the thesaurus, moving a paragraph, indenting, formatting and changing fonts, and
3. a document on the DOS machine and a similar list of operations to perform on the document.

The student has 90 minutes to complete the entire exam.

The exam for literacy II consists of three parts:

1. a spreadsheet with a list of operations including formatting and formulas and functions to define and enter,
2. a database with a list of queries to perform, and
3. a randomly chosen list of six questions from which the student must choose four to answer using the word processor.

The student may choose which platform to do the spreadsheet on and then must do the database on the opposite platform. This exam also has a 90 minute time limit.

The Course

The course consists of six one hour lectures in a large lecture section and nine one hour hands-on lab classes in a small lab section. In the lecture section concepts, theory, computer appreciation and societal issues are addressed. The Lab sections cover the hands-on skills. We are currently running the courses for three weeks with the fourth week for testing. The courses were piloted in Spring 1992. They were taught as regular courses beginning Fall 1993. In Fall 1994 they became required courses for all incoming freshmen. Based on initial feedback, we feel these courses are very successful.

The material the students learn in Computer Literacy I and Computer Literacy II courses is designed to provide a skill base on which all disciplines can build. Instructors should feel confident in requiring students to use computers in completing assignments. Many text books have accompanying software to complement the text. An instructor should feel comfortable in using these materials without adding a computer literacy component to a course.

Challenging the course

Similar exams are used for those students challenging the course as for the students taking the course. The exams are taken in a controlled lab setting.

Assessment

Assessment of courses required by all university freshman is important. With the help of our assessment director we devised an assessment plan. In their first lab, each student is asked to complete a perception survey using a Likert scale. The survey asks students to self-assess their computer abilities. The same perception survey is given to the students in the last lab. We will statistically analyze the results to see of there is a difference between the students perceived ability at the beginning of the course and at the end of the course. The ending perceptions are compared with the students actual performance on the final exam to determine if their perceptions match their actual performance. A question-by-question analysis will indicate the areas that need special attention.

Conclusion

We are still in the early stages of analyzing our courses. However we feel computer literacy is off to a very good start. The following are preliminary statistics.

Computer Literacy I

	Enrolled	Passed	Failed
Fall 94	279	73%	27%
Winter 95	216	67%	33%

BEST COPY AVAILABLE

	Challenged	Passed	Failed
Fall 94	106	61%	39%
Winter 95	7	100%	0%

Computer Literacy II

	Enrolled	Passed	Failed
Fall 94	163	92%	8%

	Challenged	Passed	Failed
Fall 94	5	80%	20%

The response of both the students and the faculty has been very positive. Area high schools have begun discussion with us, so that they may better prepare their students for entry in our institution.

By the spring of 1996 we plan to begin assessing the retention of the computer literacy skills by assessing the skills of students in subsequent courses.

APPENDIX

Computer Literacy I
CSCD 100
Course Concepts

Computer components and peripheral devices
Elements of software and hardware
Use of electronic mail
Operating System of DOS or Windows, and Mac platform
Formatting disks
Creating and displaying of sub directories and folders
Copying files
Renaming files
Deleting files
Word Processing on DOS or Windows, and Mac platform
Creating and printing documents
Formatting text
Selecting fonts
Use of spell checker
Use of thesaurus
Graphics on Mac platform
Elements of paint and drawing programs
Use of paint tools
Use of drawing tools

Computer Literacy II
CSCD 101
Course Concepts

Spreadsheet on DOS or Windows, and Mac platform
Creating and printing spreadsheets
Formatting spreadsheet data
Elements of labels
Elements of formulas and functions
Creating graphs
Database on DOS or Windows, and Mac platform
Creating databases
Elements of fields, records, and files
Querying databases
Generating reports
Query of the library database
Exploring the University Library database
Telecommunication

Definition of telecommunication terms
Telecommunicating with another computer
Internet

References

Dyck, V. Arnie, Black, James P., Fenton, Shirley L., "Beyond Traditional Computer Literacy" ACM SIGCSE Bulletin Vol. 19, 1987, pp. 508-512

Halaris, Antony, Sloan, Lynda, "Towards a Definition of Computer Literacy for the Liberal Arts Environment", ACM SIGCSE Bulletin 17, March 1985, pp. 320-326

Goldweber, Micheal, Barr, John, Leska, Chuck, "A New Perspective on Teaching Computer Literacy", ACM SIGCSE Bulletin Vol 26, No. 1, March 1994, pp. 131-135

Myers Jr., J. Paul, "The New Generation of Computer Literacy" ACM SIGCSE Bulletin Vol. 19, No. 9, 1989, pp. 177-181

Parker, J.D., Schnbeider, G.M., "Problems with and Proposals for Service Courses in Computer Science", ACM SIGCSE Bulletin Vol. 19, No. 1 1987, pp. 423-427

Sellars, Harold L, "Way a College Course in Computer Literacy?", ACM SIGCSE Bulletin Vol 20, NO. 2, June 1988, pp. 58-59

Spresser, Diane, "A Moderate Approach to Computer Literacy", SIGCSE Bulletin Vol 17, No. 1, March 85, pp. 327-331

Van Dyke, Carolynn, "Taking 'Computer Literacy' Literally", Communications of the ACM, May 1987, Vol. 30, No. 5, pp. 366-374

paper